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THERMAL DESIGN OF CYLINDRICAL HOHLRAUMS FOR THE NIF*

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ABSTRACT

The current indirect-drive approach to achieving inertial confinement fusion envisions x-ray heating of a uniform thickness condensed hydrogen fuel layer in a spherical target centrally mounted in a cylindrical hohlraum. It is anticipated that the uniform layer will be produced by the β layering of a deuterium-tritium mixture resulting from the heat released during tritium decay. This process requires providing and maintaining a spherically symmetric thermal field around the target capsule. Results of a finite element thermal model of the capsule-hohlraum system will be presented to illustrate the determination the necessary heat input variation along the hohlraum wall to produce the desired spherically symmetric isotherm field.

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